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EXAMINER

TAMAI, KARL I

ART UNIT PAPER NUMBER

2834

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,068

Applicant(s)

BOBZIN, JORG

Examiner

Tamai IE Karl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 213-265 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 213-265 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 30 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The amended title "MACHINE OF ELECTRO-MAGNETIC INDUCTION WITH A BENT AIR CORE COIL BETWEEN TWO MAGNETIC BODIES" has been entered into the file wrapper.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the v shaped coils which are twisted relative to each other in the direction of movement must be shown or the feature canceled from Claim 222, or the single conductor winding of claims 221, or the continuous pole face in the direction of the conductor of claim 242. The two neighboring sections with two uniform air gaps, a uniform and non uniform air gap section, and two neighboring sections with non-uniform air gap need to be shown in the drawings or the feature cancelled from claims 216-265.

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings were received on 9/27/2004. These drawings are objected to as containing new matter. There is no support in the specification for drawings 42 or 43.

Claim Objections

4. Claim 232 is objected to because of the following informalities: it does not depend on a preceding claim (with regard to claims 256 and 257). Claim 238 line 4 “either” is misplaced as there are no alternatives.
5. Claims 240, 241, and 263 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 240, 241, and 263 not been further treated on the merits.
6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not provide antecedent basis for the claimed terminology of “uniform air gap” and “nonuniform air gap”.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
8. Claim 216-265 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to

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one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification does not contain a full, clear, concise, and exact written description of the uniform and non-uniform air gap sections, or neighboring air gap sections being two uniform air gap sections, uniform and non-uniform, or two nonuniform air gap sections. The specification does not support the winding being "non-ferrous" of claims 220, 221, and 227. The specification does not support a single conductor winding of claim 221. The specification does not support the magnet having a continuous pole face in the direction of the conductor of claim 242.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 213, 214, 230(213), 231(213), 232 (213, 214), 233 (213, 214), 234, and 265 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (US 4349761) and Dunn et al. (Dunn) (US 6,617,748). Aoki teaches to neighboring air gap sections in figure 2c which are uniform (straight) air gap sections and oriented 90 degrees to each other. Aoki teaches every aspect of the invention except the body with magnetic poles being backed by a return path material. Dunn teaches the magnets are mounted on flux return path plates 36, 38. It would have been obvious to a person of ordinary skill in the

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art at the time of the invention to construct the machine of Aoki with the flux return plates of Dunn to mount the magnets to the housing and to provide efficient magnetic flux flow through the machine.

11. Claims 216, 219, 229, 232 (216), 232 (216), and 244 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa (JP 58-179,153) and Dunn et al. (Dunn) (US 6,617,748). Nozawa teaches uniform air gap sections. Nozawa teaches the rotation of coil relative to the fields is about a shaft. Nozawa teaches every aspect of the invention except the magnet being backed with a magnetic return material. Dunn teaches the magnets are mounted on flux return path plates 36, 38. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the machine of Nozawa with the flux return plates of Dunn to mount the magnets to the housing and to provide efficient magnetic flux flow through the machine.

12. Claims 218, 219, 221, 222, 232 (218, 221, 222), 233(218, 221, 222), and 244 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oba et al. (Oba)(JP 55-083,449) and Aoki (US 4349761). Oba teaches every aspect of the invention except the folded region of the coil being penetrated by a magnetic field on the folded region and/or on the outer edge, the coil moving relative to the field, and the V shaped coils which are overlapped and twisted to provide a compact coil design. Oba suggests in figure 5 that the folded Aoki teaches a magnetic pole on the edge of the folded region to provide efficient torque generation and the coil moving relative to the field. Oba teaches

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the rotation of coil relative to the fields is about a shaft. It would have been obvious to a person of ordinary skill in the art to construct the motor of Oba with a magnet on the outer edge, as taught by Aoki, to increase the efficiency of the motor, and with the coil rotating relative to the field, as taught by Aoki, because rearranging parts of an invention involves only routine skill in the art (see *In re Japikse*, 86 USPQ 70), and with the V-shaped coils overlapped to provide a compact coil design.

13. Claims 219, 220, 227(220), 228, 232(220), and 233(220) are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukami (US 4,604,540) and Fisher (5004944). Fukami teaches every aspect of the invention except the power supply being AC and the field moving relative to the non-ferrous coil. Fisher teaches that permanent magnet motors can operate from either AC or DC, with the magnets moving relative to the copper (non-ferrous windings). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the device of Fukami with the power being AC to accommodate different power supplies (AC or DC), and because it is within the ordinary skill in the art to choose between known equivalents.

14. Claims 230(216) and 231(216) are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozawa (JP 58-179,153) and Dunn et al. (Dunn) (US 6,617,748). Nozawa and Dunn teach every aspect of the invention except the curve being irregular and elliptical. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the machine of Nozawa with the curve being irregular

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or elliptical to optimize the performance of the motor and because determining the range of the curvature is within the ordinary skill in the art (It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see *In re Aller*, 105 USPQ 233)).

15. Claim 237(213, 214) and 238 (213,214) are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (US 4349761) and Dunn et al. (Dunn) (US 6,617,748), in further view of Oba et al. (Oba)(JP 55-083,449). Aoki and Dunn teach every aspect of the invention except three air gap section with 2 parallel and 1 90 degrees to the other. Oba teaches a motor with an air gap having 3 sections, 2 parallel and 1 90 degrees to the others to provide with high efficiency. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the machine of Aoki and Dunn with the three air gap sections of Oba to provide a high efficiency motor.

16. Claim 242 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukami (US 4,604,540) and Fisher (5004944), in further view of Oba et al. (Oba)(JP 55-83449). Fukami and Fisher teach every aspect of the invention except continuous magnetic pole at the outer edge. Oba teaches the permanent magnet on the inner member with a magnetic pole extending continuously around the outer edge to provide an efficient motor. It would have been obvious to a person of ordinary skill in the art at the time of

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the invention to construct the device of Fukami and Fisher with the continuous pole inner magnet to provide an efficient motor.

17. Claim 243 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukami (US 4,604,540) and Fisher (5004944), in further view of Vaillant de Guelis et al. (Vaillant)(US 4924128). Fukami and Fisher teach every aspect of the invention except the motion being linear. Vaillant teaches the equivalence of a core motor being linear or rotary. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Fukami and Fisher with linear motion to provide either rotary or linear motion as taught by Vaillant, and because it is within the ordinary skill in the art to choose between known equivalents.

18. Claim 227(221) is rejected under 35 U.S.C. 103(a) as being unpatentable over Oba et al. (Oba)(JP 55-083,449) and Aoki (US 4349761), in further view of Fisher (US 5004944). Oba and Aoki teach every aspect of the invention except winding being an AC rotary or traveling wave winding. Fisher teaches that permanent magnet motors can operate from either AC (inherently a rotating current) or DC, with the magnets moving relative to the copper (non-ferrous windings). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the device of Oba and Aoki with the power being AC to accommodate different power supplies (AC or DC), and because it is within the ordinary skill in the art to choose between known equivalents. Applicant's argument regarding Vaillant is not persuasive because Vaillant

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teaches that a person of ordinary skill designs a linear and rotary motor as equivalents. A linear motor being a rotary motor which extends straight rather than circling an axis.

Response to Arguments

19. Applicant's arguments filed 9/27/2004 have been fully considered but they are moot in view of the new grounds of rejection. The Applicant's argument that Figures 25 and 26 show the v shaped coils which are twisted relative to each other in the direction of movement is not persuasive because the figure do not show the V shaped coils being twisted in the direction of movement.

The Applicant's argument that Aoki teaches a single lateral stray field line is not persuasive because Aoki shows multiple flux lines extending perpendicular to the surface of the magnet (figure 2c) and teaches that end of the magnet is magnetized to effectively use the flux extending from the end surface of the magnet to effectively generate torque. The Applicant's argument regarding the overlapping coils, Rhomb shaped pole face, and the number of folds are not persuasive because the limitations are not claimed. The Applicant's argument that the folded region of Aoki is not being used is not persuasive because the limitation is not claimed. Claims 213 and 214 merely claim the coil bends or folds around the first body, which Aoki shows in figure 2c.

The Applicant's argument about efficiency and over lapping windings (Nozawa) are not persuasive because the limitations have not been claimed. Applicant's argument that a person of ordinary skill in the art would not develop a spherical machine or arc shaped air gap are not persuasive because Nozawa clearly shows a person of

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ordinary skill in the motor art has develop an spherical motor. Applicant's arguments that the magnet is diamagnetic is not persuasive because the limitation is not claimed and because the flux from the magnets will traverse the air gap perpendicularly to the yokes 2, 4. The Applicant's argument that Fischer is non-analogous art because it has an air on core is not persuasive because the applicant is view the reference individually rather than the combined teachings with Fukami. Applicant's argument regarding the continuous pole of Oba is not persuasive because it is clearly shown in figure 5.

Conclusion

20. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai
PRIMARY PATENT EXAMINER
January 14, 2005



KARL TAMAI
PRIMARY EXAMINER